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ACUTE INTRATUMORAL HEMORRHAGE IN A MENINGOTHELIAL MENINGIOMA: A CASE REPORT OF EMERGENCY RESECTION

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Abstract

Meningiomas are the most common benign, slow-growing, nonglial primary intracranial neoplasms, accounting for approximately 30% of all primary brain tumors. While typically indolent, spontaneous intratumoral hemorrhage is rare, occurring in less than 2% of cases, but may lead to acute neurological deterioration or death.

We report the case of a 70-year-old woman who was transported to the emergency department with acute headache, dizziness, nausea, and a recent history of focal seizures involving the right upper and lower extremities. On arrival, the patient exhibited only mild neurological deficits; however, her condition rapidly worsened. Emergent non-contrast head CT revealed a heterogeneous hyperdense mass in the left parietal region, consistent with intratumoral hemorrhage, and associated midline shift. Contrast-enhanced imaging demonstrated a well-circumscribed, enhancing lesion suggestive of a meningioma.

The patient underwent emergency craniotomy with total resection of the mass and evacuation of the hematoma. Histopathological analysis confirmed a meningothelial meningioma, WHO Grade I, with areas of hemorrhagic necrosis. Postoperatively, the patient showed a rapid and complete neurological recovery, was ambulatory by postoperative day six, and demonstrated no signs of recurrence on imaging at one-month follow-up.

This case emphasizes the rare but critical presentation of hemorrhagic meningiomas. It underscores the importance of considering this diagnosis in patients with acute neurological symptoms and known or suspected intracranial masses. Early imaging and prompt surgical intervention are vital in ensuring favorable outcomes.

Keywords: convexital meningothelial meningioma, hemorrhagic onset, total resection, decompression, tumor control.

Introduction

Meningiomas are benign, slow-growing intracranial tumors arising from arachnoid cap cells, most commonly affecting middle-aged and elderly women [*Wiemels J et al., 2010*; *Whittle IR et al., 2004*; *Louis DN et al., 2021*]. Meningothelial meningiomas—also referred to as syncytial or endothelial meningiomas—are the most frequent histological subtype, accounting for about 60% of cases. They are typically classified as WHO Grade I low-grade tumors [*Louis DN et al., 2016*; *Perry A et al., 2007*; *Greenberg MS, 2022*; *Gousias K et al., 2016*], indicating a slow rate of cellular proliferation. We present the case of a pa-

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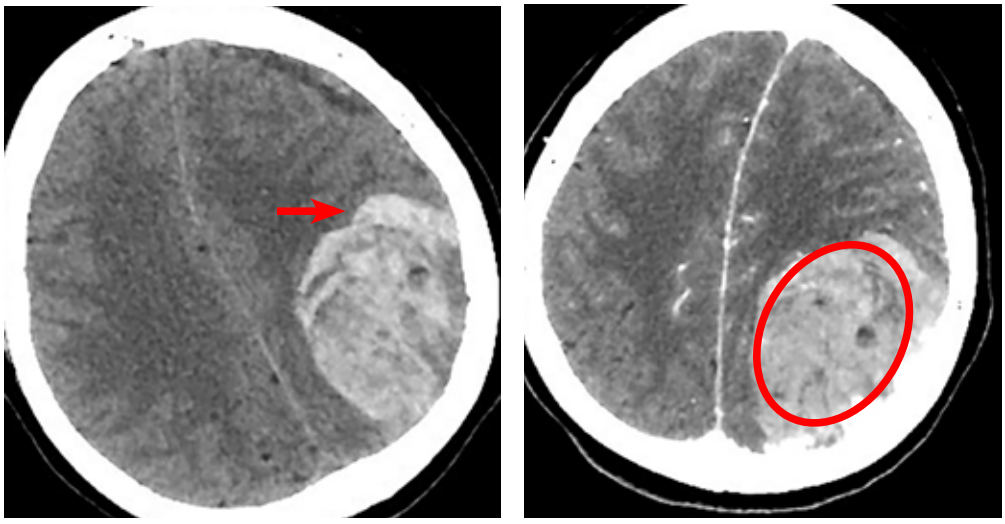


Figure 1. CT and CTA revealed a heterogeneous intraparenchymal hemorrhage in the left parietal lobe with midline shift (A) (marked by the arrow) and a peripheral contrast-enhancing mas. (marked by the circle) (B).

tient with acute intratumoral hemorrhage originating from a meningothelial meningioma located in the left parietal lobe. The patient underwent an emergency surgical resection.

Case presentation

A 70-year-old woman was brought to the emergency department with complaints of headache, dizziness, and nausea. Her Glasgow Coma Scale (GCS) score was 13. She had a two-month history of right-sided focal seizures and sensory disturbances. A brain MRI was initially planned to rule out vertebrobasilar stroke; however, her condition deteriorated, with a GCS of 7–8 and new focal neurological deficits, including anisocoria and a weak flexor response on the right side. Urgent CT and CTA revealed a heterogeneous intraparenchymal hemorrhage in the left parietal lobe with midline shift and a peripheral contrast-enhancing mass. (Figure 1).

No abnormalities were found in the intra- or extracranial arteries. Laboratory results were normal. Due to clinical deterioration, MRI could not be performed. The patient underwent an emergency craniectomy with total tumor resection and hematoma evacuation (Figure 2). A craniectomy was performed due to significant midline shift and the anticipated risk of postoperative cerebral edema.Postoperative CT showed a small subaponeurotic hematoma (Figure 3).

The patient gradually improved and was neurologically intact by day six, after which she was

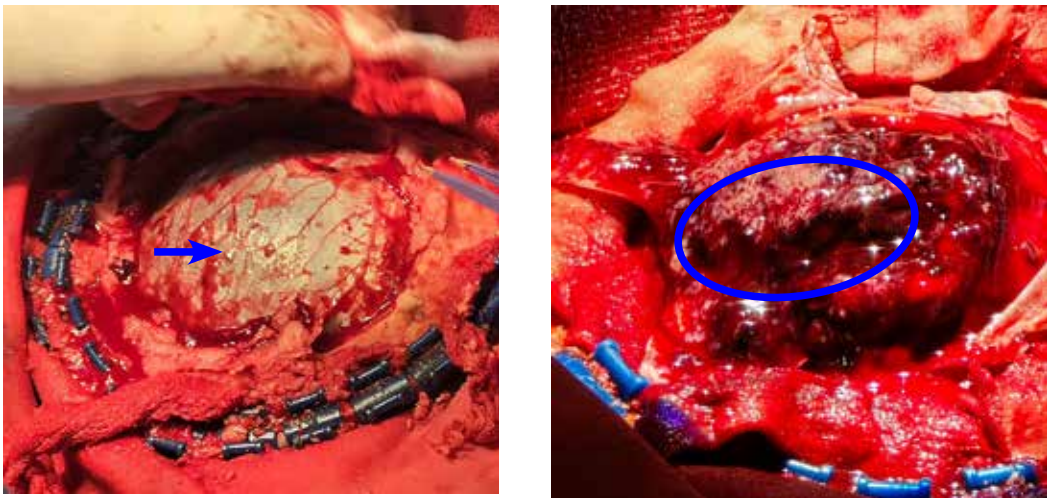


Figure 2. Exposure of the dura mater under elevated intracranial pressure before tumor resection A (marked by the arrow.) . B. Intraoperative photograph showing a dark, hemorrhagic tumor mass beneath the dura after dural opening. Emergency craniectomy was performed with total resection of tumor and hemorrhage evacuation (marked by the circle).

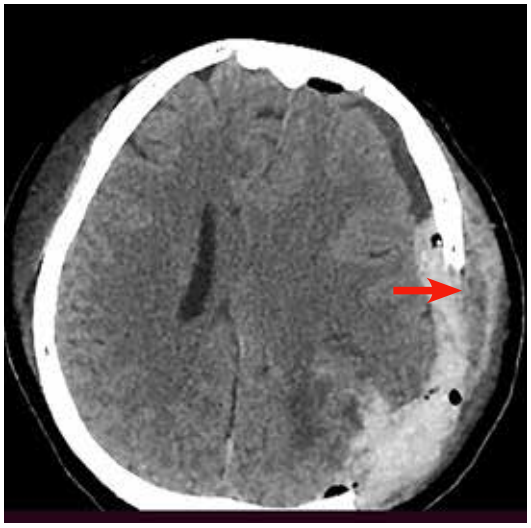
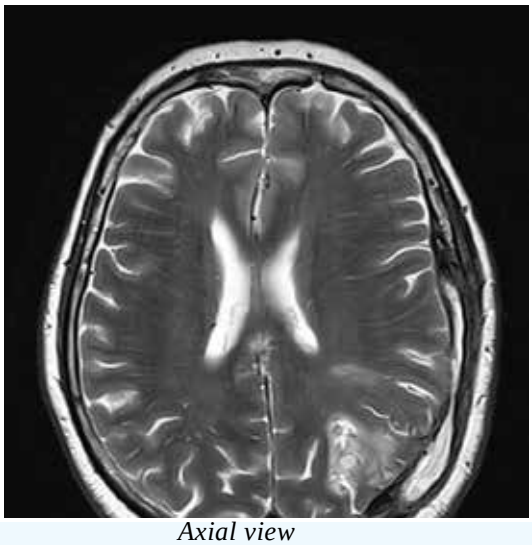
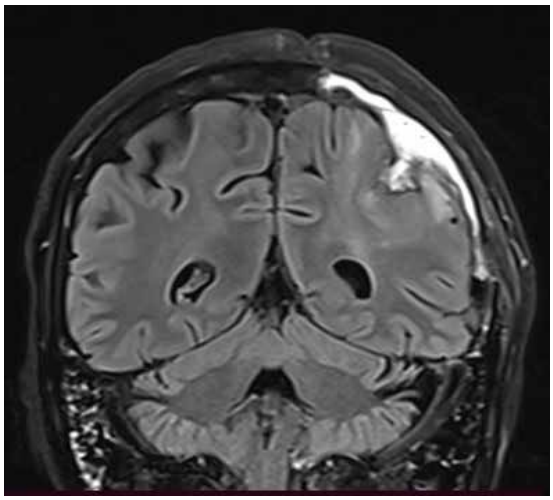


Figure 3. Postoperative CT showed a small subaponeurotic hematoma (marked by the arrow)



Axial view



Sagittal view

***Figure 4**. Follow-up MRI one month later showed no tumor recurrence .*

transferred to the neurosurgical ward. Histopathology and immunohistochemistry confirmed meningothelial meningioma. Follow-up MRI one month later showed no tumor recurrence (Figure 4).

Post-contrast images demonstrate enhancement along the gyri and sulci of the left parietal, temporal, and occipital regions, as well as the adjacent dura mater, without evidence of recurrence of the previously resected lesion.

Discussion

Meningiomas are the most common benign intracranial tumors, with meningothelial meningiomas being the most frequent subtype [*Louis DN et al., 2021*; *Perry A et al., 2007*]. These tumors usually have an indolent course and are often detected incidentally or due to slowly progressing neurological symptoms [*Whittle IR et al., 2004*]. Acute hemorrhage in meningiomas is rare (<2%) and can mimic other intracranial pathologies such as stroke or vascular malformations, complicating diagnosis and management [*Bosnjak R et al., 2005*; *Kim DG et al., 1999*].

In this case, the patient's focal seizures and paresthesias likely reflect early cortical irritation by the tumor. Sudden neurological deterioration with intraparenchymal hemorrhage and midline shift required urgent surgical intervention. Hemorrhage may result from vascular rupture within the tumor or adjacent brain tissue, though the exact mechanism is unclear. The absence of vascular abnormalities on CTA supports a tumor-related cause.

Timely recognition and imaging were essential for a favorable outcome. Emergency gross total resection remains the treatment of choice for hemorrhagic meningiomas to control bleeding and obtain definitive diagnosis. The patient's postoperative recovery was rapid, with no residual or recurrent tumor on follow-up imaging.

Conclusion

Although meningiomas are typically benign and slow-growing, this case highlights the rare risk of spontaneous hemorrhage. Acute deterioration in patients with intracranial tumors warrants urgent imaging to exclude hemorrhage. Prompt surgical intervention can be life-saving and improve outcomes. Early recognition and management are crucial in these cases.

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